The Northwestern MILLER

MILLING PRODUCTION SECTION

HOW SAFE IS YOUR JOB?

The Importance of the Seventh Sack of Flour in Providing Jobs for the Technological Personnel in Mills

By George E. Swarbreck

Editor, The Northwestern Miller

HOW SAFE is your job? That's a heck of a question to pose, is it not? But if you think I'm going to give you some hints on job protection by telling you better ways to mill your flour or to describe the advantages of this or that type of purifier, then you are going to be disappointed.

You see, there are several segments in this flour business of ours: Among them are the men, like you, who make the flour; there are the men who sell it and then there are the men who write about it. I've always been glad I'm a writer-about-it and not a maker or a seller. Much easier.

All this indicates that I am no fit person to address a meeting of technical men for I know little or nothing of the techniques of flour production. I know that you put wheat in at one end of the plant and flour comes out at the other and the milling engineers delight in telling us how near automatic the whole operation is. Of course, they will only reach the epitome of perfection when they invent a system whereby you can reverse the mill, pour in the flour, and get the wheat back when the customer tells the boss what a lousy sack of flour he sent out this week.

This, you must admit, is a good start for any speaker. He begins by telling you what he doesn't know. However, there is something I do know because it affects jobs now and will affect jobs in the future—perhaps making more of them. Certainly, the area I am going to cover is important from the job security angle.

I'm not going to throw a bunch of statistics at you. An eminent politician once said: "There are lies, damned lies and statistics." Statistics can be so easily misunderstood and misinterpreted. However, we'd better have some statistics.

Exports Make Jobs

Do you realize that of all the men and women employed in the flour milling industry in the U.S., no less than 4,381 owe their jobs to the export trade—that is, the production of flour for sale in foreign countries? The U.S. industry, in total, employs more than 28,000 people and those people in the crop year ended June 30, 1959, produced and merchandised nearly 248 million hundredweights of flour—more flour than has been produced in the U.S. in any year since 1948. More than 35 million hundredweights went overseas. Flour mill people earn nearly $120 million a year in wages and more than $17 million of that was paid for the work done in making and moving flour for export. Those exports earned $144 million for the U.S. millers out of a total product value of nearly $2 billion.

The more we sell the more we will earn. We know the consumption of flour is not enough. The millers and the bakers are working to promote increased usage per person per year —the increased offtake stems from the growing population although we appear to have arrested the decline of per capita consumption in recent years and it is running steadily at 119 lb. a year.

Own Best Advertisement

We are our own best advertisments for our product. Never fail to insist that at all luncheons and dinners of AOM the hotel management puts a plentiful supply of rolls and bread on the table. We are our own best salesmen. Nothing horrifies me more than to see a miller or an allied man refuse bread.

Whoever told you that bread is fattening is nuts. Like all foods, bread is fattening if you eat too much of it . . . and to get the right vitamins in your inside, you must put more bread down your gullets. It's as simple as that. And it is a simple story you have to sell to your friends and neighbors. You are helping to keep your own jobs safe, by being a firm advocate of your own product.

Now let's turn to this export picture. Last year the U.S. sold flour in 102 countries and territories.

One sack in every seven goes into the export market. One sack in every seven you make. It represents more than 14% of the total business worked—a few years ago it was 7%.

Of course, in the lush immediate postwar years, when the world was hungry for flour, we sold considerably more flour abroad than we do today, but times were abnormal.

You may be tempted to say that you are only interested in the six sacks going into the domestic market. Who cares about the seventh sack? Your boss is the fair haired boy among bakers in your district so let the big boys spend their money on export managers and export departments. True, there's tough competition in the domestic trade and prices aren't all they should be by a long shot. But it's a living.

During the past two seasons, the Editor has been invited by some districts of the Association of Operative Millers to speak at their meetings. He took as his subject the importance of the export trade in flour in making jobs for the technological personnel in the mills and in keeping those jobs safe. A condensed version of the presentation is published here.

If Foreign Markets Go . . .

But wait a minute! Supposing, just supposing, one fine day those export millers find themselves thrown out of their foreign markets. Something to do with tariffs or embargoes or inability to get import licenses. What's going to happen then? Thirty-five million sacks of flour will be looking for a new home. That's what'll happen. The export men will move into your preserves and that means keener competition than ever. In fact, it's my guess that there are a few mills in business today which would not be in business if there had been no growing export market to ease the competitive pressure for them. Export business, am I not right in saying, is then helping to keep your job safe? And in assessing the value of exported flour as an employment builder, remember that nearly all flour goes overseas packaged in one form or another. So that means more work in the mill and more work for the bag makers. Now don't run away with the idea that your bosses are making fabulous amounts of money with their overseas business. There isn't a great deal of profit in it because the competition is really stiff. The U.S. millers have to face Canada, Australia, the Argentine, Uruguay, France, Germany and Italy—and those boys can make good flour and it has been said that the European long extraction flours lick anything we can do over here.

And Spain was a newcomer last year to the flour exporting business and that new Hong Kong mill is needling into the trade pretty successfully. But the export trade does help provide mill run which is so vital to economical operation. There's nothing more money-shrinking than a shut-down mill.

Fillip to Modernization

And here's something else the export business has done. It has helped to give reason for spending money on new machinery and equipment. The improvement in export business registered in the last few years has given a fillip to modernization. Only the really modern efficient mill can compete pricewise with the foreign mills.

It is no secret that the best salesman for U.S. is flour. Foreign buyers will pay a premium for U.S. brands. Wheat moves strictly on price, but, for flour, quality is often the criterion. And when imported flour circulates in a country, the local millers have to buy quality U.S. wheat or face the risk of trying to compete with an inferior product.

Now this increased foreign trade has not come about just by accident. Not only do we have to compete with other exporting nations, we have to meet and beat the competition of the home milling industries, working with spanking, up-to-date plants. But I firmly believe there will always be a demand for imported flour. Andrew Taylor, the veteran Scottish flour im-

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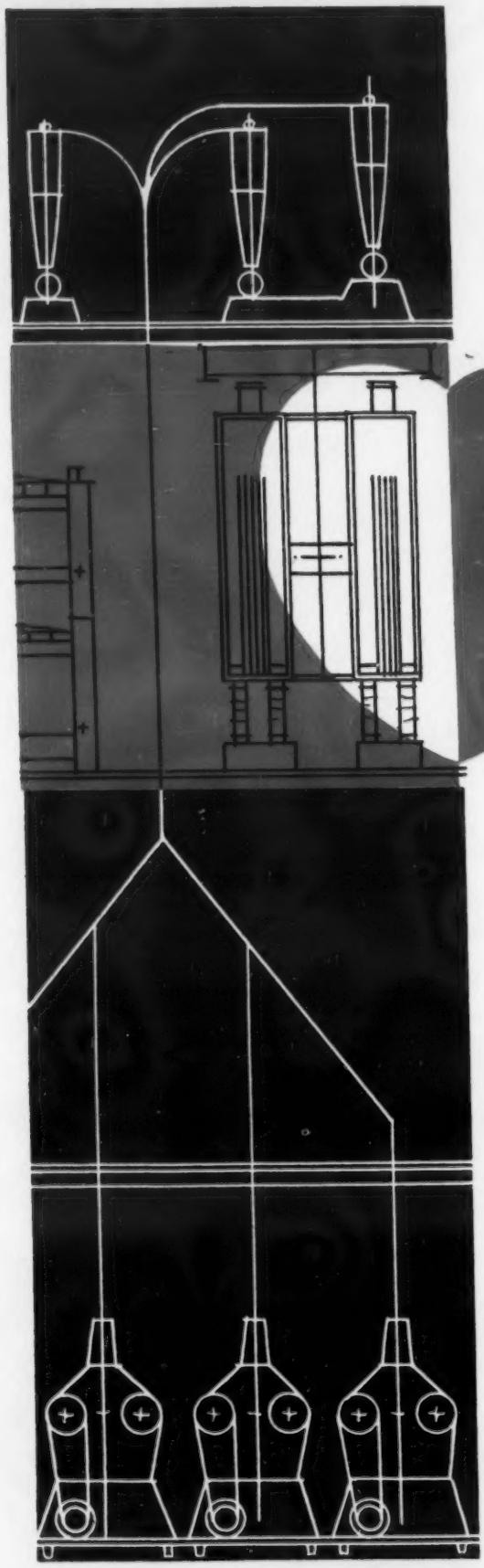

THE HEART OF THE MILL . .

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MILLING PRODUCTION ANNUAL INDEX—1959

This annual MILLING PRODUCTION index includes the feature and technical articles published during 1959. Since MILLING PRODUCTION is published both as an individual monthly publication and as a special section of THE NORTHWESTERN MILLER once each month, two references are given for each article. The first (NWM Section) lists the date and page reference of THE NORTHWESTERN MILLER's Milling Production section, published the second week of each month. The second reference (MP) is the page and date of the individual issues of MILLING PRODUCTION during 1959.

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YOUR JOB

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porter, who retired some years ago, and who imported thousands of sacks of North American flour into Scotland, once told me, after hearing a pessimistic opinion about the future of the imported trade: "Laddie, the imported flour trade has been deein' for 50 years, but it's no da'ed yet."

Reason for Upsurge

It certainly is not dead. So let us find the reason for this renaiscence. First thing to be appraised are the export staffs of the mills. They travel the world in search of business and they are the real go-getters of the industry. Their sterling work has done much to make safe the jobs of production folks in the U.S. and in Canada.

Then we have the Millers National Federation in which nearly all U.S. firms hold memberships. A few years ago the farseeing officials of the federation decided to form an export department with the job of boosting American flour abroad. Chosen to head it was a brilliant government man called Gordon Boals, widely experienced in foreign trade and well respected not only by members of the U.S. government but by senior members of governments abroad. Mr. Boals, too, is always on the go. He has strengthened existing markets and opened up new ones.

These programs are beginning to build up demand where little or no demand existed before. The consumption of wheaten products is dismally low. To some foreigners, white bread is the epitome of the high standard of living which they have come to associate with America and Americans. Much work has been done in India and Colombia, to name countries where MNF is operating extensively. There could be bigger and better markets for your products in Korea, Indonesia, Pakistan, Burma and in all the South American countries. The wheat growers themselves are doing excellent promotion work all over the world. And flour benefits directly and indirectly.

The task of selling flour abroad is no light one. Promotional work would be useless without the salesmanship of the millers for it is salesmanship which is helping fill your order books. Of course, trade has to be a two-way street. The other fellow won't buy from us unless we buy from him. Flour milling is international business and most flour millers are internationally minded.

All the evidence is there pointing to the need for an expansion of foreign trade—not merely in flour but in many other vital commodities. Yet despite this evidence there are those who persist in advocating contraction of foreign trade, relying on the emotional, yet completely erroneous, argument that this would save domestic jobs and even increase them. The most frustrating problem today lies in the task of selling the public of the U.S. that foreign commerce is not an evil and sinister plot to rob U.S. workmen of their jobs, as some irresponsible people would have us believe. Foreign trade represents beneficial expansion of production, and more jobs.

Foreign Trade Important

Cut down foreign trade and you cut down jobs—in your own case the failure to sell flour overseas might result in 4,000 of your fellow workers being thrown out into the street.

The administration in Washington is alive to the importance of overseas business, but even so there are some blind spots. About three years ago, the U.S. government actually provided funds to build flour mills in Korea. And it did the same in Pakistan. The rehabilitation and construction of those mills undoubtedly robbed North American millers of valuable trade. And here is something more important. Once upon a time Pakistan was a flour exporter serving some of the countries bordering the Persian Gulf. Today, Pakistani capacity is insufficient to meet the growing demand, but one day these millers might be competing directly with us.

The aid given by the U.S. in the past 12 years or so, starting with the Marshall Plan and the aid given by Canada, too—to a degree not completely realized in the U.S.—has done a great deal for the world's security and prosperity. Undoubtedly, dollar fertilization has helped make our competition strong — and indirectly that strength enabled such countries as England and Germany to build some spanking new mills after the ravages of war. Yet it is all part of what we call mutual security.

Dangers of Communism

Remember this, if we do not aid the under-developed countries of the world, somebody else will. And that somebody else is the Communist bloc with Russia and China as the leaders. Russia is already a provider of aid, though not on the scale practiced by the U.S. U.S. government aid programs, too, do help the flour milling industry. Last year out of an export total of 35 million sacks, just over 8 million were bought by the government for relief purposes—domestic and foreign. So you, too, benefit from the business placed by the government. Even this business did not make itself for your selling crews. It has to be sought after and that demands the hard sell. Yes, even flour going out under aid programs has got to be **sold** to the government.

Rather than foreign aid, I prefer the description "mutual security." For that is what we are aiming for. It is protection against Communism and since the Russians, particularly, have declared a trade war on us, we have to fight back with trade. Before there are 200 million people in the 50 states of the Union, and before there are 25 or 30 million Canadians, there will be one thousand million—one thousand million—Communists between the European iron curtain and the shores of the Pacific. Five to one are the odds, gentlemen. Five to one.

In the economic field, the Communists have certain clear advantages over us. They do not recognize economics as being a separate activity from politics. The methods by which they produce and distribute goods are central to their whole political faith. If wheat can be exported to achieve a political advantage, what matters it that thousands of Russians—men, women and children—have to go short? And they export wheat even when importing from Canada. They have tried to sell flour in our markets. Recently, they offered to build a flour mill in Ceylon because there are no milling facilities, with the result that Ceylon is a customer for American, Canadian and Australian flour. By offering a flour mill to the government of Ceylon, the Russians aimed at cutting our throats—your throats, gentlemen, as producers of that flour.

They have unlimited resources. For instance, if Mr. Khrushchev succeeds in his plans to increase wheat production on the Steppes, there may come a day when he will have the power to break the wheat and flour markets of the world. Recent reports have indicated that progress is being made in flour mill development. They claim to have at least 50 pneumatic mills—Dr. John Shellenberger of Kansas State University reported that—and their latest plant, opened last fall, is said to be the biggest in the world with a daily capacity of

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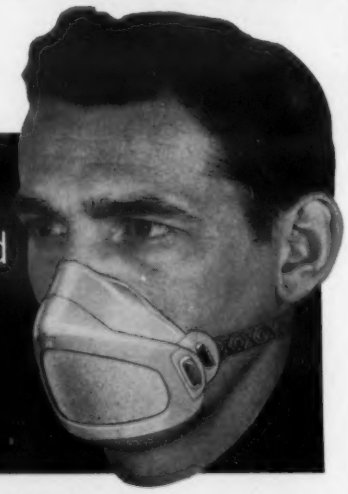

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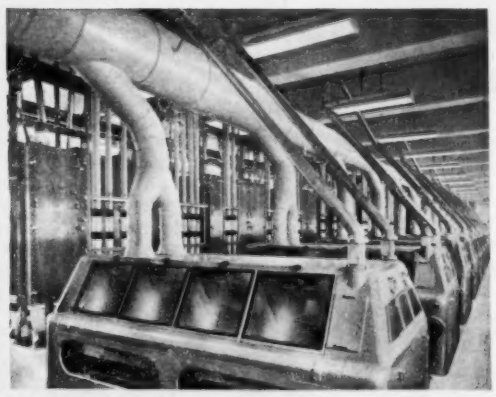

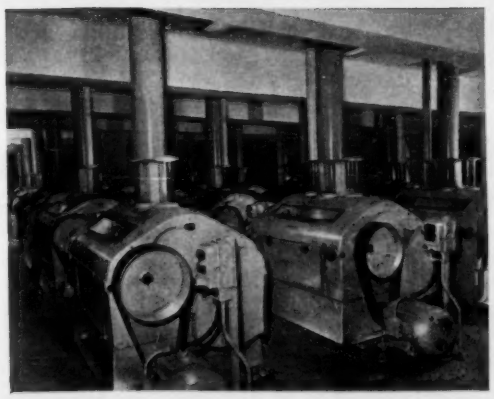

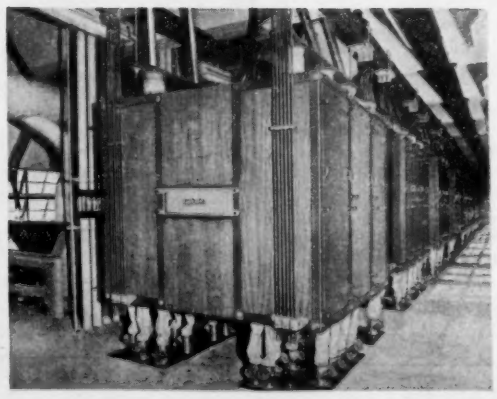

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TOP: *The first flour mill in the Philippines.* LEFT: *Robinson purifiers type PHm with the unique tail sheet aspiration grid.* BOTTOM LEFT: *The Robinson roller floor with its smooth quiet efficiency is in a class by itself.* BOTTOM RIGHT: *The Robinson Square-Sieve Sifters give a dressing unequalled by any other machine of their type yet produced.*

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40,000 hundredweights. We have to take their word for it. When Gerald S. Kennedy, chairman of the board of General Mills, was in Russia last August he tried to get permission to take a look at the mill . . . but the Russians weren't having any. Try as he might, the Commies had excuses, the final one being that no technical personnel could be spared to show him around. However, we can expect Russia has, or will have, the ability to put up some stiff competition in our overseas flour markets one of these fine days. That is why we must support, within reason, the under-developed countries who are our customers—to help them earn the means to buy.

Russia has not spent much more than $2 billion in foreign aid—a drop in the bucket compared with what the U.S. has paid out. No one supposes that the majority of the 600 million Chinese and the 400 million Indians are interested in the rival political theories of Communism and western democracy. Their horizon is bounded by their poverty. Who, they ask, will more rapidly make our own families a little less hungry and a little better off?

Put yourself for a moment in the place of one of Mr. Nehru's Indians in a country in mortal danger of Communism. Supposing you are offered a loaf of bread plus democratic freedom or two loaves of bread plus Communistic domination—which would you choose. Remember your food intake is well below accepted nutritional standards and not only you, but your wife, and your children are starving, too.

Reciprocity Important

So, if we allow international trade to stagnate, we allow the Communists to win without firing a shot, except propaganda. Therefore, we just have to raise our own standard of life faster than the Communists and help others more effectively to do the same.

We must recognize that interdependence in the free world will fail unless the U.S., Canada and their allies organize the resources of all countries outside the Communist bloc. This is sometimes called adopting a good creditor policy, such as Britain adopted in the 19th century.

Adlai Stevenson recently said: "The fact is that the free world trading system which we desire to live by and which for others is a condition of survival, cannot function unless steadily and consistently we—that is the U.S.—take up the creditor role which our predecessors in Europe are putting down."

I am sure you will agree with the truth of this. But what is not so readily recognized by so many people in the U.S. is that the lending and giving away of dollars will not save the free world unless we—the U.S.—are willing to buy the goods produced by those who receive the dollars. Failure to grasp this salient fact was the chief reason for the brickbats thrown at Mr. Nixon in Latin America.

Here it is in simple terms: We cannot hope to sell our flour abroad unless we are willing to use the dollars received in payment for the purchase of goods produced by our customers. I appreciate the point of view of those people who shrink from the idea of opening up the market to the manufactured products of the low-wage economies of the under-developed countries.

New Mills Abroad

There is much competition for your flour in the growth of new mills around the world. We have to face this fact—new mills will be built whether we like it or not. Let us make a clear statement of fact. The milling industry of the U.S. has not in the past, and never will in the future, oppose the erection of flour mills in foreign countries, even in those where valuable export outlets exist for it. It will endeavor to assist, with all its experience, in deciding whether the provision of local milling facilities is, indeed, justified. Such assistance has been given already through the medium of Mr. Boals of the MNF export department. Some would-be mill builders have reason to be grateful for the advice tendered for that advice has saved them from some costly mistakes. Given economic justification — and even uneconomic justification — the exporting millers make only one other request—that their flour be allowed to compete equally within the country alongside the flour from the local mill. They are naturally aggrieved if a tariff is raised against their flour merely for the sake of protecting an inefficient unit. The only sufferers from the withdrawal of competitive opportunity are the local consumers themselves who invariably have to pay higher prices for an inferior product because the lack of competition brings all the evils of monopoly in its wake.

The principle of the matter is abundantly clear.

The growth of new flour milling capacity throughout the world, some of it in countries just emerging from their economic cocoons, is inevitable. Much of the new capacity strikes at the very prosperity of all of us engaged in the flour business—and I do mean you as members of the production staffs, but we are prepared to compete provided the competition be fair.

U.S. Firms Active Abroad

And on the principle that if the markets won't come to the mills, the mills must go to the markets, American firms are building abroad, or cooperating with local millers. They are firmly entrenched in Venezuela and Guatemala. An American-financed mill is to be built in Ghana. Watch soon for news of U.S. participation in the Philippines. The Canadians are looking carefully at prospects in Trinidad and Jamaica and we may expect news from there soon—a cooperative venture of several millers and grain firms.

If we don't build in our big export markets, someone else will and we have to look at the problem first from the point of view of the overall prosperity of the U.S. though a milling firm unable to build is bound to be hurt when the big boys are able to use their capital resources to lift the trade from the exporting side.

So we have to face the fact that new mills are going to be built. There are dangers, it is true.

Authorities in unsophisticated countries, apparently convinced that a collection of smoke stacks denotes industrial development and consequent prosperity are prepared to aid new ventures and flour milling, so vital to the food supply, is often the first venture they undertake as part of their chauvinism. Tax relief is given to the infant industry and that is fair enough. But some governments go further. They are willing to give tariff protection and to inflict embargoes on imported flour to protect the new plant, despite the fact that the traditional wheat growing and flour producing countries of the world can provide their people with a better and less costly commodity.

Evils of Tariffs

Typical of recent happenings in this field was the situation in Haiti last year. A mill was erected with American capital—and here we came upon a conflict of interest between "U.S. trading" and "U.S. investment." Building a mill in Haiti was a typical example of U.S. enterprise. But the owners of the mill persuaded the Haitian government to increase the duty on imported flour two and one half times from $5.46 to $13.65 on a 200 lb. bag—making the duty among the highest, if not the highest, in the world. Obviously, this made it difficult for an exporting miller to compete. Thus, the monopoly of the Haiti mills is complete and real. The pattern of strife begins to emerge. Who suffers? Why, the consumers of

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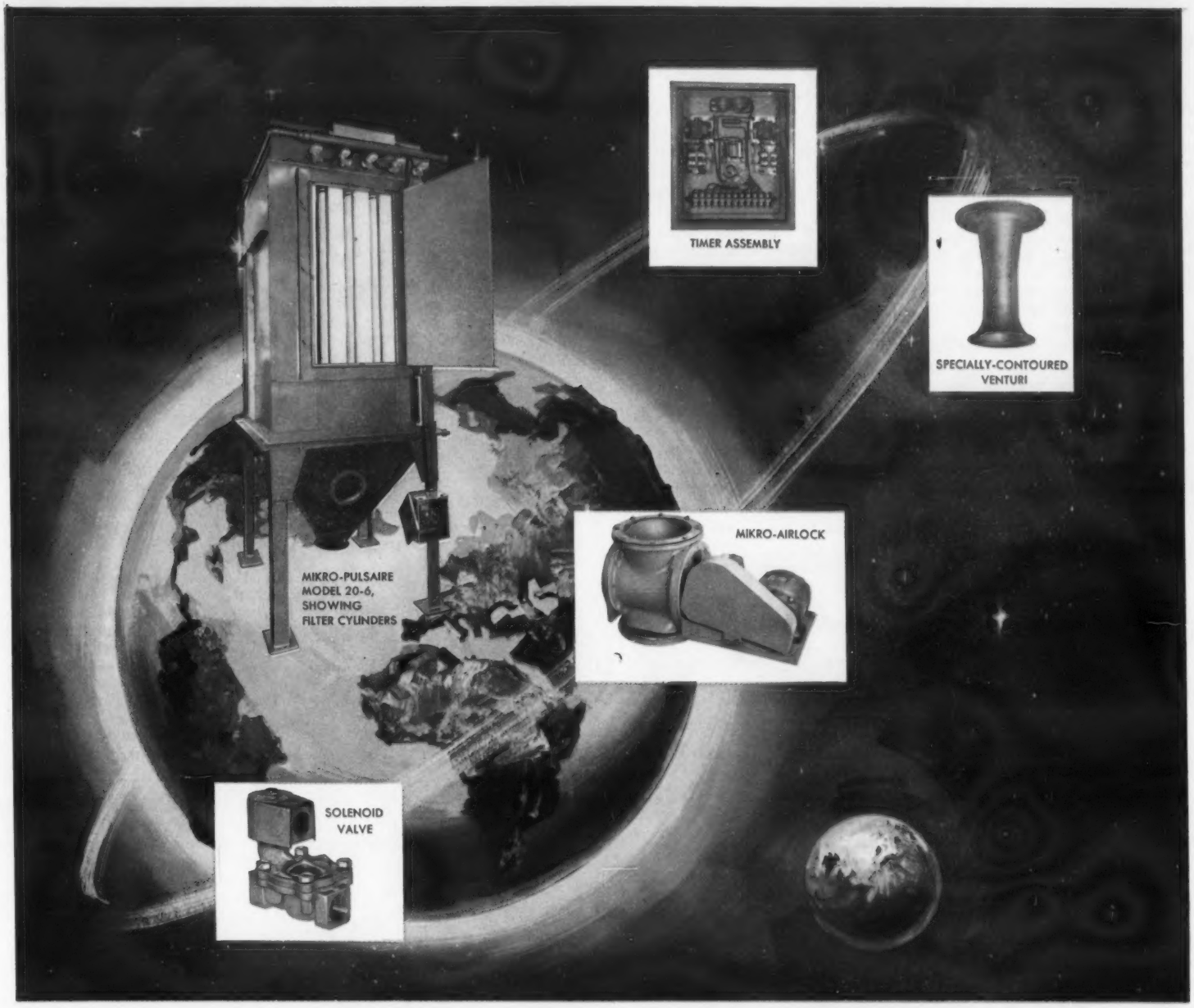

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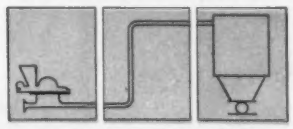

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course. They have no alternative to taking what the local mill offers in place of the 50 or more brands formerly available from abroad. A historical and traditional market goes out the window. No doubt you read of the anger of some of the people in Haiti. The mill had to be protected by a high steel fence and was guarded night and day by a platoon of soldiers with instructions to shoot in the face of attack, thereby providing the very kindling of civil war. There were beatings and someone took a pot shot at the manager. Luckily, the would-be assassin missed.

We must also face the fact, then, that the erection of a new mill, no matter who finances it—Americans, Canadians or local interests — is bound to be followed by some tariff protection for the new unit.

But be assured that it will be the endeavor of many in the industry to fight hard when those tariffs are unreasonable and prohibitive and are aimed at killing competition.

Reciprocate or Else

Many people in the U.S. have come to the support of the government in its pleas for reciprocal trade. Perhaps the governments which impose punishing duties should remember—that reciprocity means just that—it is a two-way street. To plead for reciprocity in trade when foreign governments put prohibitive tariffs on North American goods — the goods that provide you with a living — is the acme of futility.

The U.S. has been too generous in the past, it seems to me. There is no sentiment in business; there is no such thing as "friendly" competition; it is a matter of common economic survival. Perhaps a little more toughness is called for. Maybe the U.S. can afford to drop its role of beneficent neutrality occasionally. The call should be "Reciprocate or else."

We do have cases where investors go abroad—and this includes some Americans—and deliberately induce the local government authorities, sometimes even stooping to bribes, to give a monopoly to manufacture a product that can be imported to much better advantage for the local consumer. Of course, this is usually done under the guise of increasing job opportunities and economic activity. This is a specious argument at best and you may notice the near-comparison with some of the fallacious arguments used by the protectionists in this country. The criticisms leveled at the U.S. government for aiding foreign mill construction have had one good result. Douglas Dillon, under secretary of state, formed an inter-agency committee which now screens all applications for aid involving flour mills and the chance of one getting past the officials is very small. We have to face the desire of many countries to have flour mills—there is no getting away from it. But it is up to all of us to make our products such that—quality-wise and price-wise—it is what the customer wants. Meet and beat the competition and fight like mad when we are unfairly kept out of a market, using every trade weapon we can.

Well, gentlemen, I hope you appreciate how important to your jobs, to your families, to the economy of the country, is that seventh sack of flour. It is all part of an economic cold war, part of a pattern which makes the country so dependent upon trade for life. That seventh sack counts, yes, it counts.

Swedish Firm Opens Crispbread Factory Near Stockholm

STOCKHOLM—The large Swedish manufacturers of crispbread, Svenska Knäcke AB, are at present test running a new factory at Järna, south of Stockholm, said to be Europe's most modern in its field. When completed, it will be almost 100% automatized.

The entire production of five to six tons of bread every 24 hours will be handled by two men each shift from a control room. The factory will be operated continuously in three shifts.

The initial annual capacity will be 1,500 tons of bread, which, however, can easily be trebled through extensions. The first enlargement stage will consist of a silo and a flour mill to enable the company to buy grain direct from the farmers. There is also a modern laboratory.

The rye flour is transported by means of compressed air through tubes up to a gigantic cistern in a 60-ft. high tower. From here the flour is fed down into a machine which automatically mixes the right amount of rye, water and salt every four minutes and stirs the ingredients for a prescribed time.

The dough then passes into a machine which flattens and forms it into large crispbread squares.

While going through the fermentation process, the dough moves on a roller-band to an electric oven. After baking, the bread is transported on a dryer band to the cutting and baking machines, neither the ingredients nor the finished product are ever touched by human hands.

DON AND DELLA EBER GET OUT OF TOWN!

★

Mr. and Mrs. Donald S. Eber—he is executive vice president of the Association of Operative Millers—have left Kansas City, Mo., where they have lived ever since moving from the West Coast in 1947 for a new residence at 4633 West 71st St., Prairie Village 15, Kansas. The new home, however, is closer to downtown Kansas City, where the AOM office is located, than the old one. Set in pleasant surroundings, the Ebers have already hosted several of their friends in the milling business at the new abode.

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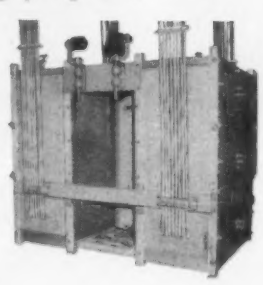

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Some Thoughts on Panel Shows At AOM District Meetings

By George E. Swarbreck
Editor, The Northwestern Miller

THE "panel show" has become increasingly popular at district meetings of the Association of Operative Millers in recent years and one of the reasons motivating this development is the opportunity it affords for using the services of members who do not ordinarily get a chance to speak in front of their fellow-millers.

Sometimes they hold back because of shyness or a fancied inability to speak well and clearly in public. Yet once engaged in the cut and thrust of panel discussion, with some friendly sparring from the audience, a miller will find that he has, indeed, the gift of expressing himself. Some excellent speakers have been discovered as a result of joining in a panel discussion.

Again, some millers are afraid to appear in public in case they inadvertently give away some of their firm's secrets. This is always possible, but a polite refusal to answer when questioned on a specific point will always receive the sympathy and understanding of the audience. There are very few secrets in the industry, anyway, and the danger of giving away something vital is remote.

Choosing Panelists

Officials with experience in this sort of presentation advise that a judicious mixture of old and young members provides the best panel. The experienced mingle with the inexperienced and everybody, panelists and auditors, learn something new. Most program designers try to avoid having allied tradesmen on the panels, except perhaps as moderators, because these men are usually good speakers, anyway, and are easily persuaded to describe some technical point which the panel discussion brings out.

However, there is often some difficulty in selecting an interesting series of questions. Here again, an admixture of "difficult" and "easy" is the best answer because it gives everybody a chance to say something.

One of the best series of questions presented to a panel in the past year was that used at the December meeting of District 2, AOM, in Kansas City. The questions are reproduced at the end of this article merely as a fertilizer for ideas. Many program chairmen will think they can improve upon them, but in the estimation of experts, this group of questions fulfills the maxim of "judicious admixture."

Before considering the questions, however, here are some words of advice culled from a survey of experienced panelists. First, employ an experienced moderator, be he a miller or an allied man. Let him be personable and well known to everybody on the panel itself and in the audience. Secondly, allow plenty of time for the "panel show" because as excitement rises, many members will want to get into the act. It is a pity to have to rush through questions, yet the program must not be allowed to slow down.

The rule should be to pass to the next question not when the previous question has been sucked dry, but when it looks like it is being sucked dry.

Thirdly, make sure that each panelist has his name clearly indicated on a card in front of him and, fourthly, have the moderator insist that any speaker from the floor state his name, and if desired, the name of his firm, before making his comments. The moderator should always be prepared to repeat or rephrase any supplementary questions from the floor through the microphone so that all present may know exactly what has been asked.

Finally, a friendly word of caution for some of the young and enthusiastic allied men in the audience—if

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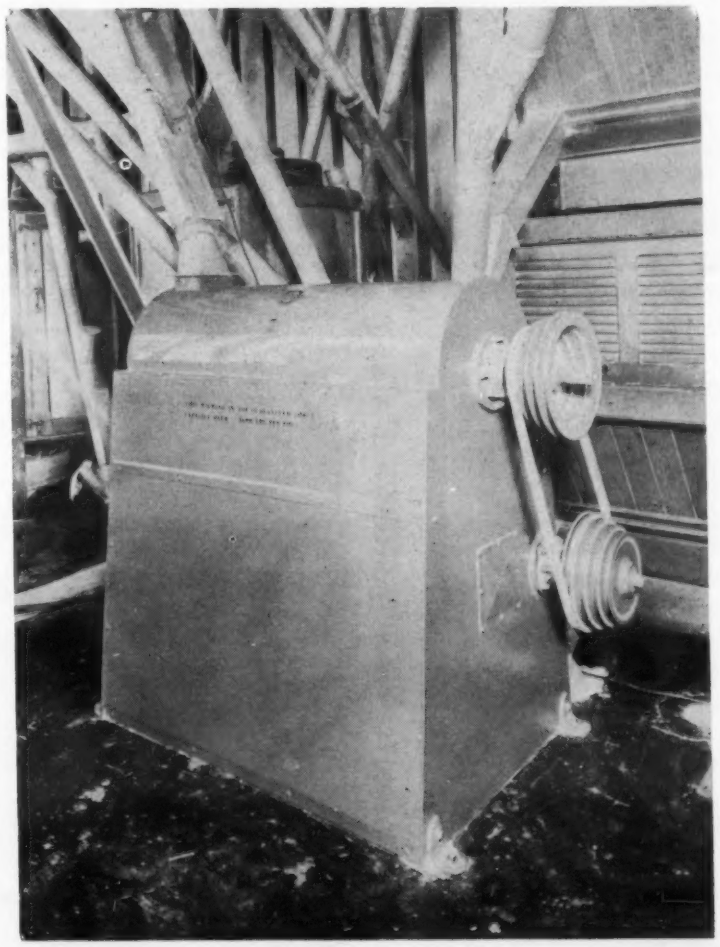

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a member of another allied firm is being "pinned" to the wall on a technical issue concerning the product he handles, keep your mouth closed. This is especially desirable if you are his competitor. Joining in criticism can be offensive; even the offer of a helping hand from a competitor may not be welcomed because every salesman is on his own and he wants to make the points himself when he has been invited by the moderator to add to the discussion from the floor.

And it is the height of discourtesy to seek him out afterwards in the company of others and "rib" him on his answers.

This is not intended to "muzzle" other allied men in the same line of business and all are entitled to speak at the proper time.

There are some dangers, it is true, in a "free-for-all" panel discussion, but the advantages far outweigh these dangers. Millers are professional men and a discussion can be carried on with dignity by all concerned. Provided these simple rules are followed, a "panel show" can add to the value of district meetings of AOM.

Here are the questions:

1. Has the new type purifier in comparison to the old type justified the cost of replacement in regard to yield, quality and sanitation?

2. Are stoners essential in the cleaning and preparation of wheat stocks for milling?

3. What is good procedure to apply enrichment to Farina?

4. What is the best conditioning method for this year's crop on bakery mixes?

5. Can rodent hairs affect flour streams in a pneumatic transportation system?

6. What moisture control is necessary in pneumatic handling of mill stocks?

7. Do the advantages of a pneumatic handling system permit replacement of standard wood and metal elevation equipment?

8. Are the best results on wheat conditioning systems obtained by the use of hot water or dry stream?

9. Do you believe the correspondence program is doing a real service to the industry in training millers? Any suggestions for improvement?

10. Has the tote flour handling system proved itself economically feasible? How are they handled in your plant?

11. In this crop year, has anyone gone to a shorter spiral on their break rolls? If so, what are their results?

12. Are any of the mills using wheat heaters in their wheat cleaning department?

13. On making coarse and fine Farina, what percentage of each are you able to make?

14. What capacity, in cwts. per hour, are you able to blow Farina into Airslide cars?

15. How much temper time do you consider best for this crop year of hard winter wheat and why? What moisture are you getting in your patent, clear, bran and shorts?

16. If you are grinding with your breaks set dull to dull, would you get an increased cutting action if you changed the differential from 2.5 to 1 at 500 r.p.m. to 3 to 1? If so, would the cutting action be as great as if you were grinding sharp to sharp at 2.5 to 1?

17. On the different differential drives, like the A-type, the flat B-type or the B-V-type belt, which gives the best trouble-free grinding action?

18. In the tempering of wheat, does it shorten your tempering time if you heat the wheat before adding first wet? Would it do as much good to heat the water instead of the wheat?

19. What is considered the best way to grind sizing stock? Is it better on smooth or corrugated rolls?

20. Would it be considered good milling to use corrugated rolls on No. 1 middlings stock?

21. How does this year's crop temper compare to last year's?

22. How does the high-speed bran and shorts duster compare to the old upright brush type?

23. What is the best way to keep condensation, etc., from collecting in spouts?

24. What can be done about flying insects when the bakery opens Airslide cars for unloading?

25. If a sifter running 180 r.p.m. with 4 in. throw is speeded up to 265 r.p.m. with 2½ in. throw, how does capacity compare? a) on breaks, b) on middlings, c) on rebolting?

26. Is there a difference in above if sifter is free swinging or captive drive?

27. How do G-type break sieves compare capacity-wise to deep single flow sieves?

28. What difference in capacity is there between smooth and cut roll on middlings? (36 on No. 1 middlings and 40 on No. 2 middlings). Will an impact mill do better on No. 1 and No. 2 middlings reduction?

29. Is there a better corrugation for hard winter wheat than the usually used modified Dawson?

30. What makes stock float on a roller mill?

—BREAD IS THE STAFF OF LIFE—

Why Does the Cookie Test Work?

Soft wheat flour that bakes into large, flaky sugar-snap cookies gets a good quality rating for making pastries, biscuits, crackers, and pretzels as well as cookies. In fact, the sugar-snap-cookie test—a measurement of cookie spread—is the standard first step in evaluating the quality of a soft wheat.

Scientists at the Soft Wheat Quality Laboratory, Wooster, Ohio, who check milling and baking properties of newly developed soft wheats, are trying to find what makes flour pass or fail the cookie test. They are working on methods of determining the actual physical and chemical basis of baking quality to give a better guide to wheat breeders in developing new wheats.

EDITOR'S NOTE: An understanding of dough's behavior in baking may lead to better breeding guides for soft wheats, says the Agricultural Research Service of the U.S. Department of Agriculture in a recent publication of research reports.

Experiments by ARS chemist W. T. Yamazaki point to the behavior of flour components in the presence of water as a main factor in cookie quality.

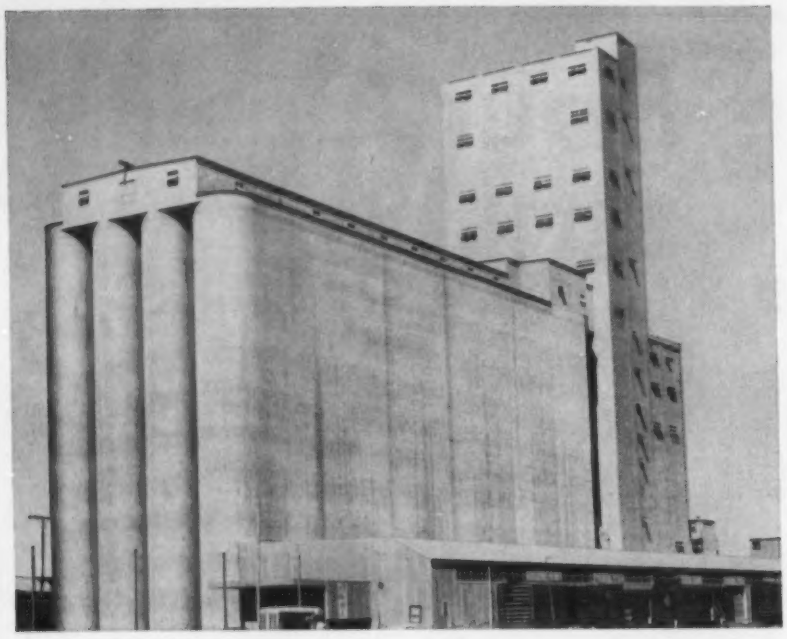
Mr. Yamazaki first found a correlation between cookie spread and the hydration capacity of flour. Flours that held little water baked large, flaky cookies, while flours with high water retention made hard cookies that spread little during baking.

After separating flour into three basic fractions—gluten, prime starch, and crude starch tailings—Mr. Yamazaki showed the crude starch tailings had the highest hydration capacity. And this component reduced cookie spread in relation to the amount of starch tailings in the flour.

Addition to test flour of other highly absorptive substances such as agar and gelatin also reduced cookie spread. So the physical nature of the tailings, rather than their chemical composition, appeared to be responsible for the adverse effect on cookie spread.

In another experiment, the rate of increase in viscosity of cookie doughs with increasing temperature correlated with cookie quality. Test flours from four wheat classes—soft white, soft red, semihard red, and hard red—had cookie-quality ratings of good, fair, poor, and very poor, respectively, by conventional tests.

Tested for rate of change in viscosity under heat, doughs from the soft white wheat flour remained plastic the longest and required the highest temperatures for setting. But doughs from hard wheats increased in viscosity relatively early in the heating. And cookies made from soft white wheat flour spread for about nine minutes during baking, compared with five to six minutes for cookies made from hard red wheat.



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Flours for Soup

The Need for Bacteriological Tests

(Reprinted from Milling, of Liverpool)

THERE are several reasons why bacteriological status of flour provides little cause for concern in the baking, confectionery, sweet making and fish frying trades. It is only spores that survive boiling, baking and frying. The number of spore-forming bacteria in flour is only a minute fraction of the total bacteria population. Surviving spores can multiply only if the medium is sufficiently moist and favorable in composition and the temperature sufficiently high, and these conditions are encountered only in bread stored in excessively hot weather.

Flour is used, however, in the preparation of some canned foods, particularly soups, and in these foods surviving flour bacteria meet different conditions. The medium is a liquid one, it is out of contact with the atmosphere, and the period of storage between manufacture and consumption may be comparatively long. Canned foods are heat processed but the treatment does not necessarily produce sterility, the spores of thermophilic, that is, heat-loving, microorganisms being particularly likely to survive. If surviving organisms in a canned soup include anaerobic species, i.e., species that grow in the absence of oxygen, the environmental conditions to which they are exposed and the length of storage may combine to enable multiplication to proceed to an extent that induces spoilage. A necessary safeguard in the soup cannery, therefore, is the inclusion of bacteriological tests in the routine examination of flours.

Undoubtedly a number of millers will have seen a specification for flours acceptable to the soup canner and some of them will have been puzzled by the bacteriological items that it contains. Usually such a specification prescribes limits for "total spore count," "flat sour count," "sulphide spoilage organisms" and "thermophilic anaerobic spores."

FLOUR SUITABILITY

The suitability of a flour for a particular purpose can usually be assessed from a knowledge of its protein content, its protein quality, its diastatic activity and its color. Certainly the determination of these properties should suffice to reveal whether a flour will meet the requirements of the baker, the confectioner, the biscuit manufacturer, the sweet maker or the fish fryer. Rarely does flour intended for use by any of these manufacturers or processors need to be examined bacteriologically. When the occasion does arise it is likely that the request for a bacteriological test will come from a baker who has had complaints of ropy bread, in which event the examination will involve only the determination of the rope spore content of the flour.

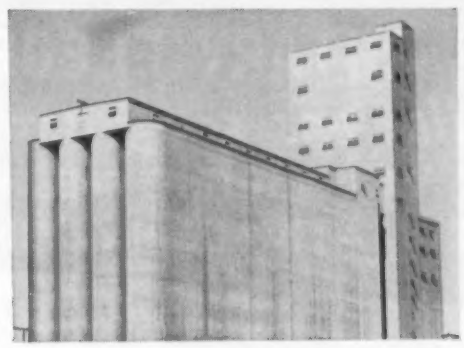
Total Spore Count

The first mentioned item, the "total spore count," is an index of the effectiveness of the heat processing to which the canned soup has been subjected; if the total number of spores present is unduly high, the soup has been under-sterilized. The spore content is determined by mixing in known proportions a dilution of the soup with a liquefied bacteriological medium, heating the mixture at 100°C. for 30 minutes in order to kill any bacteria other than spores, allowing the mixture to set in a thin sheet in a sterile closed container, incubating the solidified sheet of medium, and counting the number of bacterial colonies that subsequently appear on the sheet. Each colony develops from one spore, and hence, the number of colonies represents the number of spores in the quantity of soup contained in the mixture of diluted soup and medium poured into the container.

It is common practice to combine the determination of the "total spore" count and that of the "flat sour count." This is done by incorporating in the bacteriological medium that is mixed with the diluted soup a dye that changes color in the presence of acid. Any spore in the soup that originates from a "flat sour" organism produces acid as it multiplies to produce a colony and this acid causes the solid medium surrounding the colony to change color. A "flat sour" organism will produce acid in a canned food just as it does in a sheet of bacteriological medium and consequently will cause the food to become sour. It does not, however, like many other acid-forming bacteria liberate gas concomitantly with the production of acid and hence the ends of a can containing food contaminated with a "flat sour" do not bulge but remain flat. Hence the description, "flat sour."

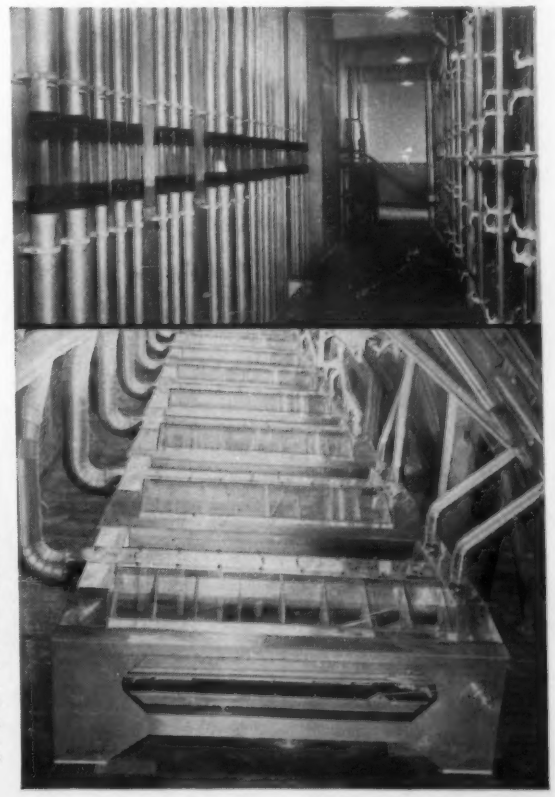
The "sulphide spoilage" organisms

PRATER TROPHY—Roland G. Nelson of Plainfield, Ill., Prater Pulverizer Co.'s "Salesman of the Year," foreground, receives his trophy from Bill Earl, sales manager. Mr. Nelson also won the award in 1958. G. F. Thomas, Prater president, watches at the left. The same meeting of company officers and employees included cutting of a cake in observance of Prater's 35th year of operation.



SIMON-CARTER milling equipment used throughout PILLSBURY MILL

Simon and Carter high capacity machines increase operating efficiency and reduce costs wherever they are installed. More and more millers are converting to Simon-Carter equipment to cut the rising cost of milling and make their milling operation more profitable.



Simon Pneumatic System, showing suction pneumatic lifts with sight glasses on the sifter floor. Provides for efficient conveying of mill stocks and a clean, sanitary mill operation.

These Simon Type S Purifiers have set new standards of efficiency in purification and in simplicity and accuracy of control. They are recognized as the finest machine of their type.

SIMON-CARTER CO.

673 Nineteenth Ave. N. E. • Minneapolis 18, Minn.

produce hydrogen sulphide, an evil-smelling gas that many readers will remember from their early days of chemistry. Because of this these organisms were at one time known as "sulphur stinkers." Canned foods contaminated with spores of these organisms not only become inedible because of the smell and taste of the hydrogen sulphide but also turn very dark. This latter action of the organisms forms the basis of the method used to determine the extent to which they are present in a food; a dilution of the food is mixed with a medium that includes a sulphur-containing compound and an iron salt and after incubation of the heated and subsequently solidified mixture, a count is made of the black areas resulting from a reaction between the iron salt and hydrogen sulphide liberated by the organisms.

"Thermophilic anaerobic spores" originate from bacteria that grow only in the absence of air and consequently special precautions to exclude air have to be taken when a food is being tested for their presence. They can grow in canned foods from which the air has been exhausted before closure and as they produce both acid and gas their presence can cause swelling of the containers.

A flour milled from sound, clean wheat should give counts for these four classes of organisms that are well below the limits prescribed in a specification for flour for a soup cannery. Such a flour should also meet the requirement that taints must be absent, and good housekeeping in the mill should prevent rejection under the clause calling for freedom from weevil and rodent infestation. The requirement that the gluten content must be low suggests that the flour might be milled from a weaker type of native wheat but it must be low in diastatic activity in order that the flour may comply with the specification with respect to maltose figure and amylograph reading. These latter two properties are important because if the diastatic activity is too high the soup, of which the flour is an ingredient, may be insufficiently thick after heat processing.

There is little doubt if a mill making flour that gives a good showing on the "filth test" were to mill a clean and sound weak English wheat with a really low maltose figure it would produce a flour not only possessing satisfactory thickening properties but also bacteriologically acceptable to the soup canner.

By
THE SCIENCE EDITOR
of Milling

—BREAD IS THE STAFF OF LIFE—

Luxemburg Elevator Opened; Designed By Swedish Firm

STOCKHOLM—What is said to be one of the most modern grain elevators in the world was recently inaugurated in the city of Mersch, Luxemburg, for Centrals Paysanne Luxembourgeoise. The plant was designed by the Swedish firm of consulting engineers and architects, LBF, and has a storage capacity of 20,000 tons.

The elevator is equipped with five receiving units, each having a capacity of 60 tons an hour, and with a dryer for about 40 tons an hour. The cleansing and weighing of grain take place in the receiving units.

All machines, distributors, valves, discharge devices, etc., are remote controlled from a panel in the grain reception hall. From this panel the operator can direct the grain to any desired elevator cell in the plant. The system includes some 400 individual electric motors.

New-type scales have been installed for weighing grain. The scales work automatically and are connected to a calculating machine that registers on a card net weight of the grain received. Other relevant data such as customer number, date, type of grain, etc., are also printed by the calculating machine.

Another innovation is that all waste is automatically transported from the elevator plant to a boiler where it is used as fuel for heating the dryer plant.

The Swedish LBF firm has projected similar plants both in Europe and in the Middle East. Among current projects is one for a large number of elevators in the United Arab Republic.

The Bulletin Board

★ ★ ★

Jan. 15-16—District 10, AOM, Hacienda Motel, Fresno, Cal.

Jan. 23—District 5, AOM, Springfield, Ill.; sec., Edward Mehleck, Alexander Bros. Belting Co., Chicago, Ill.

Jan. 30—District 4, AOM, Radisson Hotel, Minneapolis.

Feb. 19-20—District 14, AOM, Denver, Colo.; sec., John Street, Wallace & Tiernan, Denver, Colo.

Feb. 26-27—District 11, AOM, Hotel Roanoke, Roanoke, Va.; sec., J. L. Campbell, Sterwin Chemicals, Inc., Charlotte, N.C.

March 4-5—District 7, AOM, Adolphus Hotel, Dallas, Texas.

March 18-19—Districts 3 and 6, AOM; Cleveland, Ohio.; secs., District 3, John Money, Quaker Oats Co., Akron, Ohio; District 6, Oscar Nelson, King Milling Co., Lowell, Mich.

March 18-19 — District 12, AOM, Twin Falls, Idaho; sec., Joseph J. Keiser, Salt Lake Flour Mills, Salt Lake, Utah.

March 25-26—Districts 1 and 2, AOM, Wareham Hotel, Manhattan, Kansas.

April 2—District 8, AOM, Markeen Hotel, Buffalo, N.Y.; sec., Roy F. Kehr, Kresselk Products, Inc., Depew, N.Y.

April 16—District 4, AOM, Curtis Hotel, Minneapolis, Minn.; sec., W. A. Howie, J. K. Howie Co., Minneapolis, Minn.

May 1-5—AACC, Morrison Hotel, Chicago.

May 8-11 — MNF, annual convention, Edgewater Beach Hotel, Chicago, Ill.

May 22-26—AOM, annual technical conference and trade show, Sheridan-Jefferson Hotel, St. Louis.

Sept. 9-10—District 7, AOM, Lake Murray Lodge, Ardmore, Okla.; sec., Henry H. Stark, Ross Machine & Mill Supply Co., Oklahoma City, Okla.

Oct. 28-29—District 11, AOM, Robert E. Lee Hotel, Winston-Salem, N.C.; sec., J. L. Campbell, Sterwin Chemicals, Inc., Charlotte, N.C.

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WRITE FOR BULLETIN P-58
PRATER PULVERIZER COMPANY
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For Mills, we recommend . . .
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BELT DRESSINGS
Specialized for Your Industry
Belt Clinch No. 2 (liquid) and Bar Belt Dressing No. 3.
These dressings are preferred by 75% of our flour mill customers.
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JOHN C. CHAMBERS CO.
1827 N. LeClaire Ave.
Chicago 39, Ill.

Kansas State Milling School Needs Students—a Reminder

(Reprinted from the Association of Operative Millers Bulletin)

MANHATTAN, KANSAS—In September, 1959, only seven freshmen enrolled in the Department of Flour Milling at Kansas State University. This, the smallest enrollment in recent years, is due in part to the fact that the pilot flour mill and related facilities were destroyed by fire. Our goal should be 60 freshmen annually for the department beginning this next fall. From this freshman group, it is estimated that between 45 and 50 seniors would be graduated four years hence.

Kansas State is the only institution of higher learning in the world offering a specific course leading to a university degree in flour milling. Construction of the new flour milling facilities is in progress, with completion scheduled for mid-summer, 1960. The state of Kansas has provided approximately $1 million for these facilities which will accommodate a total enrollment of 200 students. It is estimated that the total cost of the building, plus the equipment, will exceed $1,300,000.

Presently, the department has 15 full time academic positions maintained through appropriations by the State of Kansas. It is estimated that a few new staff positions will be created as the department expands to serve a larger number of students and a more extensive research program. The present staff is a highly trained, competent group devoted to the task of teaching and research in the interests of cereal technology.

The course at Kansas State provides complete university training not ony in milling, but in all basic sciences, engineering and the humanities. Individuals who graduate from this institution are well rounded college graduates who have specialized in milling administration, milling operations or milling chemistry and are prepared to assume positions of leadership and responsibility in our society.

One of the most vital aspects of an academic program in milling at Kansas State is the training of competent research personnel for the industry. This emphasizes the importance of a graduate research program devoted to the needs of the industry. Such a program can flourish only if graduates already trained and committed to this field are available to carry on such research.

Young people can be interested in a career in milling by millers' personal contacts with high school teachers, counselors and superintendents. These educators should be given a full and complete picture of our business in the hope that they will carry our story to prospective high school students beginning with sophomores, and especially students with a solid background in high school science and mathematics. This makes it possible to reach a great number of students through the channels normally employed in counseling young people in a choice of college careers.

In addition, millers should make every effort to talk to high school classes on "career days" describing opportunities which exist in the milling business and inviting them to learn more about the milling industry's curriculum at Kansas State. They should request known graduates of the milling department of Kansas State to visit high schools and explain first hand the facilities at and the opportunities in the flour milling business. These men have a real knowledge of the school and can best describe the advantages its graduates have in competition with employees who did not attend Kansas State.

It should be emphasized that the university placement service shows, with practically no exceptions, that it has placed all milling graduates in jobs which compare favorably with positions secured by other graduates. Young people everywhere in the country, and particularly those currently enrolled in high school, must be made aware of the policy of the milling industry to maintain good job opportunities at pay levels competitive with other industries and that opportunities for promotion exist.

Last year's graduates in flour milling from Kansas State University received offers of $400 to $475 mo. The average was $440 mo. This was $80 mo. more than the average which college graduates with B.A. degrees were offered.

You should encourage your sons to engage in the milling industry and, as a background for this, to attend Kansas State. Every effort should be made to spread the word to high school students that scholarships are available for those who qualify. There are currently available in the department 13 scholarships ranging in value from $250 to $400 year, with seven of these scholarships now open. At least four of these have never been awarded.

The Roche Review Of Enrichment Requirements

for Cereal Grain Foods in the United States

All figures represent milligrams per pound

PRODUCT	Thiamine (B_1) Min.	Thiamine (B_1) Max.	Riboflavin (B_2) Min.	Riboflavin (B_2) Max.	Niacin Min.	Niacin Max.	Iron Min.	Iron Max.
Enriched BREAD or other *baked* products	1.1	1.8	0.7	1.6	10.0	15.0	8.0	12.5
Enriched FLOUR[1]	2.0	2.5	1.2	1.5	16.0	20.0	13.0	16.5
Enriched FARINA	2.0	2.5	1.2	1.5	16.0	20.0	13.0	*
Enriched MACARONI & NOODLE Products[2]	4.0	5.0	1.7	2.2	27.0	34.0	13.0	16.5
Enriched CORN MEALS	2.0	3.0	1.2	1.8	16.0	24.0	13.0	26.0
Enriched CORN GRITS[3]	2.0	3.0	1.2	1.8	16.0	24.0	13.0	26.0
Enriched Milled WHITE RICE[4]	2.0	4.0	1.2**	2.4**	16.0	32.0	13.0	26.0

* No maximum level established.

** The requirement for vitamin B_2 is optional pending further study and public hearings because of certain technical difficulties encountered in the application of this vitamin.

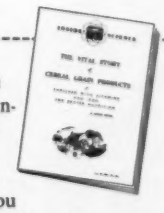
1 In enriched self-rising flour, calcium is also required between limits of 500-1500 mg. per pound.

2 Levels allow for 30-50% losses in kitchen procedure.

3 Levels must not fall below 85% of minimum figures after a specific test described in the Federal Standards of Identity.

4 The Standards state that the rice, after a rinsing test, must contain at least 85% of the minimum vitamin levels. The Governments of Puerto Rico and the Philippines also require this rinsing test. If the method of enrichment does not permit this rinsing requirement to be met, consumer size packages must bear the statement, "Do not rinse before or drain after cooking." Rice enriched by the Roche method will meet the rinsing test. The South Carolina law does not require a rinsing test on packages less than 50 pounds, as the rice in small packages is presumed to be sufficiently clean.

The maximum and minimum levels shown above for enriched bread, enriched flour, enriched farina, enriched macaroni, spaghetti and noodle products, enriched corn meal and corn grits and enriched rice are in accordance with Federal Standards of Identity or State laws. Act No. 183 of the Government of Puerto Rico requires the use of enriched flour for all products made wholly or in part of flour, including crackers, etc.



Brief, authoritative stories about the enrichment of many cereal grains have been gathered into a booklet which you may have for the asking. Just send your request for "The Vital Story of Cereal Grain Products" to the Department of Education, Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey.

Roche®

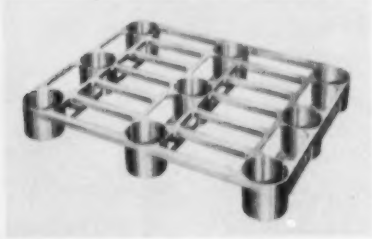
Worth Looking Into

New Products
New Services
New Literature

This reader service department announces the development of new and improved products, new services and new literature offered by manufacturers and suppliers. Claims made in this department are those of the firm concerned. Use the accompanying coupon to obtain the desired information.

No. 2154—Magnesium Handling Pallet

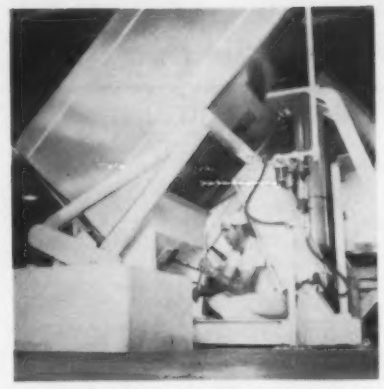
Mag-Craft Corp. has announced production of a new magnesium material handling pallet which it claims offers numerous advantages over its



counterpart in wood, including drastic weight reduction and increased load capacities in addition to extreme handling ease. Elimination of fasteners and high mortality materials eliminates the pallet maintenance problem. Other features of this pallet, available in aluminum too, are consistent size and weight, reduced load damage, four-way entry, ease of storage, and personnel safety. Mag-Craft's new pallet is available in a variety of sizes to meet the needs of almost any application. For details, check No. 2154 on the coupon, clip and mail.

No. 2155—New Tilt For Tote Equipment

A new style Tote tilt—discharge mechanism for Tote bins—has been introduced by Tote System, Inc. The tilt is available both as a screw and gravity discharge mechanism. The new unit incorporates all the benefits of the stationary hopper tilt which was introduced in 1957 and overshadowed sales of the "standard" tilt in less than a year. In addition, the relocation of the air cylinder actuator to the front of the mechanism rather than the back allows its use without increasing headroom requirements—particularly important in plants with low headroom. This style tilt totally eliminates the chance of lift truck damage to gaskets and has the added advantage of permitting a



gasketed dust-tight seal between the Tote hopper and the surge hopper into which it feeds. The unit, including the sealing gaskets, remains in fixed position while the Tote bins it serves as shipping container, storage unit and discharge hopper, make contact with the gaskets and hopper. For details, check No. 2155, clip the coupon and mail.

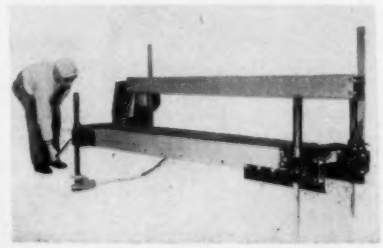
No. 2157—Aeration Unit for Grain

This flat storage aeration power unit was designed and produced by the grain aeration division of Douglas Chemical Co. The unit is designed to pull over 10,000 cu. ft. of air a minute through the grain. This is

one of the largest power units that has been developed by Douglas. For details, check No. 2157, clip the coupon and mail.

No. 2156—Flat Belt Conveyor

Unique flexibility in bagging operations is provided by a new flat belt conveyor which can be adjusted in height as well as length, officials of Richardson Scale Co. have announced. An adaptation of the Model GA-11 bag conveyor which allows changes in length from 7 ft. to 12 ft., the new unit's standard height of 8 in. can be easily jacked by one operator to any position within a range of 12 in. The new conveyor is designed for all package conveying, and in particular to convey filled bags from



weighing and packing equipment through a sewing operation. Richardson officials pointed out substantial cost savings are realizable by mass producing one standard unit to fit all applications. The adjustable features contribute to simple installation, and when changes in production layout are required, the conveyor is readily adaptable to smaller or larger space requirements. The surface of the belt is absolutely flat since the belt rides on flat metal skid plates. All sizes of bags may be conveyed because there are no obstructions or confining braces. For further information, check No. 2156 on the coupon, clip and mail.

No. 2158—Bulk Trailers Standardized

Standardization of its line of "Airveyor Bulk Transport" trailers by The Fuller Co., has been announced. As a result of this standardization,

bulk trailers are now available in two basic types: self-filling, by means of vacuum, or gravity-filling from overhead supply. Both types are self-unloading by means of pressure, and are produced in either "van" style or on the "dump-type" chassis pictured. These trailers are built for dry bulk materials which are not fluidizable, such as sugar, starch, malt, pebble lime and plastics. Unloading rate for some commodities is up to 50 tons an hour. Completely self-contained, these trailers feature a "closed circuit" system which uses the same air over and over, thus eliminating the transfer of moisture from conveying air into sensitive materials. A built-in dust collector eliminates the need for individual dust collectors at each consumer's plant. If desired, collected dust and fines need not be re-incorporated with the main bulk, but can be disposed of or returned to the producer for re-processing. Pressure discharge employs no troublesome air locks. In the dump-type units, material funnels from a single tilting tank into a conveying pipe at the rear. By means of an optional tail gate the payload can also be dumped by gravity. A forward compartment houses the dust collector, blower and engine. The van-type models, on the other hand, consist of three vertical containers from which material funnels into a single underslung transport line. The dust collector is in the nose compartment, while blower and engine are in the rear. For further information, check No. 2158, clip and mail the coupon.

No. 2159—Buhler Vacuum Conditioner

Buhler Bros. has developed a laboratory vacuum conditioner to provide the information needed for proper and efficient operation of a plant-sized vacuum conditioner. The data obtained on the laboratory conditioner can be immediately applied to the large unit in the mill. Therefore the big conditioning operation can be started up with the ideal temperature and flow-through time for cor-

Send me information on the items marked:

☐ No. 2154—Pallet	☐ No. 2163—Motors
☐ No. 2155—Tilt Tote	☐ No. 2164—Calculator
☐ No. 2156—Belt	☐ No. 7730—Switches
☐ No. 2157—Aeration	☐ No. 7733—Hopper
☐ No. 2158—Trailers	☐ No. 7743—Brochure
☐ No. 2159—Conditioner	☐ No. 7744—Pump
☐ No. 2160—Thermometer	☐ No. 9149—Bulletin
☐ No. 2161—Safety	☐ No. 9155—Test
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rect heat treatment, softening, and possibly, drying and cooling. The laboratory vacuum conditioner is built on a trolley. The entire front serves as working table. The actual treatment-vessel and all control devices are well arranged on a panel which separates them from the apparatus and motors necessary for the operation. The sample of the grain to be tested trickles uniformly down the treatment vessel over a tube system, just as in a full size service conditioner. A thermostat and pneumatic valve in the hot-water circuit keep the temperature constant and at the desired level. Wheat may thereby be conditioned in the desired manner with or without vacuum and under the same conditions as in the service conditioner in the mill. The conditioned sample of wheat is then ground in the laboratory mill and the resulting flour examined with laboratory apparatus to determine its gluten properties and baking quality. For details, check No. 2159 on the coupon, clip and mail.

No. 2160—Thermometer For Heat Testing

Accuracy of the thermocouple type of temperature measurement has just been proved by a new fever thermometer, Hot Spot Detector, Inc., points out. A unique thermocouple-type medical thermometer, made in Switzerland, has recently been tested and approved by the U.S. Food and Drug Administration and the National Bureau of Standards, Hot Spot reported. The thermometer is distributed in the U.S. by the Cary Thermometer Co. It contains no glass and no mercury, therefore is non-breakable and need not be shaken. It is a three-inch metal prong attached to a dial the size of a man's wristwatch. Thermocouples are used in Hot Spot's temperature measuring systems, used primarily by the grain industry to detect any heating in stored grain. For details, check No. 2160, clip the coupon and mail.

No. 2161—Safety Mechanism Offered

Roto-Guard, the positive motion indicator safety mechanism manufactured by the Bin-Dicator Co., has been accepted for listing by Underwriters' Laboratories, Inc., and has been approved and listed by the Canadian Standards Assn. Roto-Guard is a machinery safeguarding mechanism designed to convert rotary motion into an electrical signal. This signal impulse may be used to energize an alarm system or to operate control switches automatically. Construction of the Roto-Guard may be considered fail-safe, since any failure of its mechanism results in actuation of the safety controls to which it is electrically connected. It is available in general purpose and explosion-proof models to provide reliable protection for conveyors, feeders or process machinery where stopping or slowdown may cause damage. Check No. 2161, clip and mail the coupon for details.

No. 2162—Indicator For Weighing

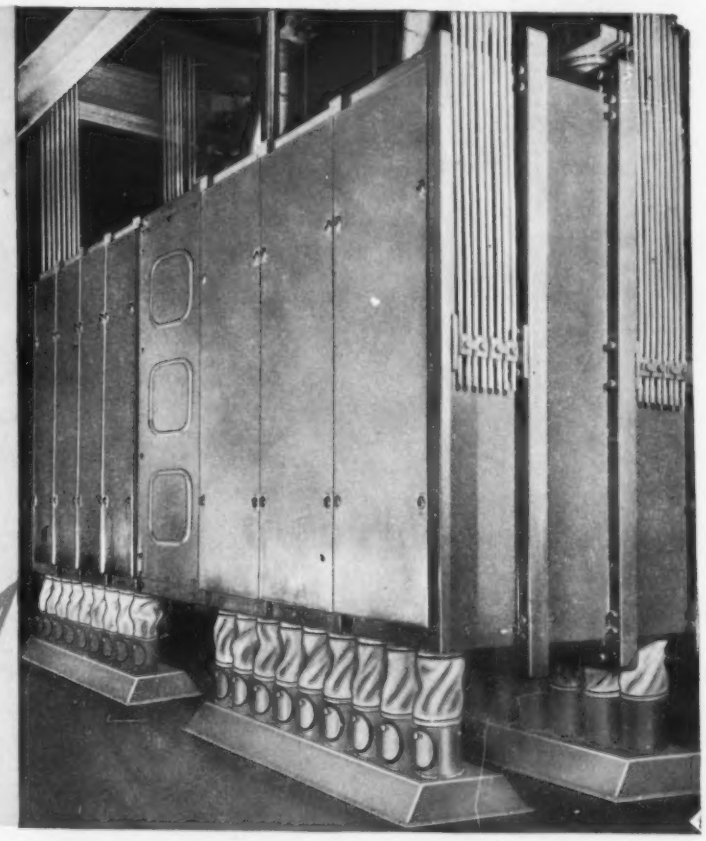
Remote indication of both batch and cumulative weights is given in a compact new unit introduced by Richardson Scale Co. The new unit combines indicator and single-unit totalizer. Totalizer records cumulative weight in pounds either of a single ingredient or, when used in a proportioning system, of a combination of ingredients. Output during any hour, shift or day may be read directly on the totalizer-counter. This eliminates the need for adding and subtracting when on-the-spot flow checks are necessary. For details, check No. 2162 on the coupon, clip and mail.

No. 2163—Reverse Relays for Motors

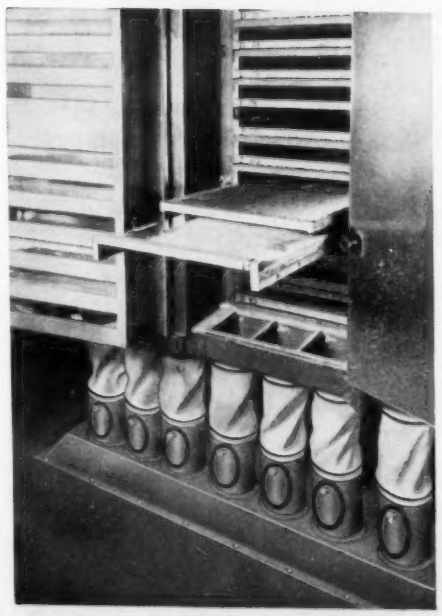
Pneumatically-controlled industrial processes can be given "fail-safe" protection in case of air line failure with a compact new reverse relay announced by Powers Regulator Co., it is claimed. Type 783 reverse relay is an auxiliary device which gradually reverses the action of pneumatic operated valves, motors and dampers. In industrial applications, the reverse relay connects normally-closed pneumatic equipment to normally-opened operation. When air supply pressure falls to zero, the equipment reverts to its normally-closed position and shuts down, thus providing the control system with "fail-safe" protection. The relay's size is 1-9/16 in. diameter by 2⅝ in. long and is 60% smaller than its predecessor model. It mounts easily on a valve or damper motor, behind control panels, or next to a wall-mounted controlling instrument. Check No. 2163 on the coupon, clip and mail for details.

BÜHLER

Absolutely leak-proof!



The BUHLER PLAN-O-STAR... New high-capacity drawer type sifter



Sieves and trays may be removed individually from either side of the Sifter.

Planning to modernize?

Then it will pay you to take a close look at this new metal Sifter . . . and consider the many operational advantages you'll gain by doing it the BUHLER way. For example:

High Capacity. In capacity per sq. ft. of bolting area, the new BUHLER *Plan-o-Star* is surpassed by none . . . and at the same time, requires a minimum of floor space.

Sieves Removed Individually. It takes one man only a few seconds to remove the handy size sieves for inspection, cleaning, or interchange at any point of a sieve stack. Each compartment can be opened from both sides in a matter of seconds. Sieves and trays are separate and of standard size. No conveying flights. Sieve cleaning method is optional; either cotton cleaners or brushes.

Leak Proof. Tight-fitting labyrinth joints make the *Plan-o-Star* completely leak-proof, inside and out.

Individual Drive. The BUHLER *Plan-o-Star* is usually driven by a vertical flange motor with V-belts. Simple operation, low power requirements.

Easy to Clean . . . therefore, the highest degree of sanitation.

Other Features. Sifter flow is easy to change . . . adaptable stroke for high or low speed sifting . . . strong supporting frame.

Write today for more information on this unusual new Sifter. You'll be under no obligation.

BUHLER

Serving the Flour Milling Industry since 1860

No. 2164—Calculator For Flour Processors

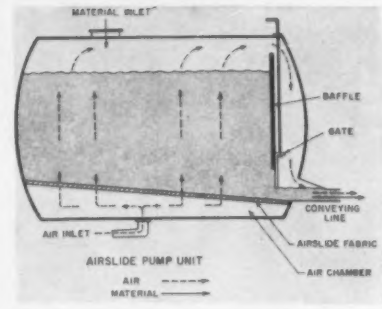
Monsanto Chemical Co.'s inorganic division has announced availability of a time-saving leavening agent calculator for flour processors and ready-mix manufacturers. The calculator, compact and easy to use, gives a quick reference as to the amount of leavening agent needed in proportion to the amount of soda being used in the formulation to obtain desired leavening characteristics of processed flours. Tables include quantity recommendation for SAPP and Py-ran (Monsanto's sodium acid pyrophosphate and stabilized anhydrous monocalcium phosphate), dicalcium phosphate dihydrate and monocalcium phosphate monohydrate as well as SAPP mixtures with Py-ran or monocalcium phosphate monohydrate. The calculators may be obtained at no cost by simply checking No. 2164, clipping the coupon and mailing.

No. 7743—Laboratory Services Brochure

Availability of an illustrated brochure describing special and routine laboratory services has been announced by Harris Laboratories, Inc. In addition to standard services in research and testing for the food, pharmaceutical and agricultural industries, company literature says, several unusual facilities are listed. Among these are technical surveys for investors and lending agencies, research farm facilities and other investigations. The brochure is available by checking No. 7743 on the coupon and mailing to this publication.

No. 7744—Conveying Pump

Dry bulk material fed into a pneumatic conveying line is controlled as



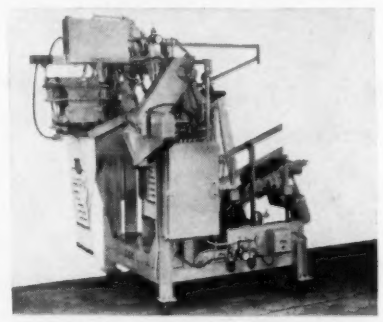
to volume and material-air ratio by a low-pressure tank and pump combination introduced by Fuller Co. A single source of air supply provides pressure for unloading, feeding and conveying. Called the "Airslide Pump," the unit can be mounted on truck, trailer or skids. It serves as a self-discharging bulk carrier, the company says. Essentially a tank in structure, it is of lightweight construction, increasing the payload within weight limitations. Control of material discharge rate permits regulation of material-to-air ratios so that conveying can be accomplished at operating pressures below 15 psi, and therefore, below range regulated by pressure vessel codes, the company says. For further information check No. 7744 on the coupon and mail.

No. 9155—Mental Ability Test

A general mental ability test, designed to give personnel administrators a quick, economical and scientifically reliable indication of mental ability as an aid in hiring, placing and promotion, has been announced by Aptitests. The test is part of a series of eight Aptitests which measure intelligence, personality traits and specific job aptitudes and abilities. The test is a relatively short-time test. Complete information on the general mental ability test, and on the series of Aptitests is available by checking No. 9155 on the coupon and mailing to this publication.

No. 9160—Automatic Bag Hanger

An automatic bag hanger which supplies empty open-mouth multiwall bags to a filling machine and places them on the loading spout has been announced by Union Bag-Camp Paper



Corp. Adaptable to all Union I & C bagger models, the auxiliary machine eliminates the need for a bag filling operator, the company says. By utilizing both vertical and horizontal adjustments, the machine can handle a broad range of bag sizes in either gusset or tube type. The controls of the bag hanger are interlocked with those of the automatic bag filling machine. This prevents the empty bag from moving to the loading spout until the filled bag is released. For details, check No. 9160 on the coupon and mail.

When the Mill Mutual man heads for your plant, here are some of the things he can do for you:

1. Look over policies to see if they give the insurance you need at the lowest possible net cost.
2. Inspect plant from top to bottom to see if all possible is being done to prevent loss — not only from fire but also from production slow-up or break-down.
3. Show how simple "preventive maintenance" records and follow-up can reduce losses — and increase values, production and profits.
4. Show how personnel in plants large and small can be organized — all the way from a small committee to a fire brigade — to prevent loss.

The Mill Mutual man is one of a hundred fieldmen and engineers day by day visiting mills and elevators nationwide, wherever grain is stored or processed.

They represent:

AMERICAN MANUFACTURERS MUTUAL INSURANCE COMPANY, CHICAGO, *Est.* 1837;

GRAIN DEALERS MUTUAL INSURANCE COMPANY, INDIANAPOLIS, *Est.* 1902;

MICHIGAN MILLERS MUTUAL INSURANCE COMPANY, LANSING, *Est.* 1881;

MILL OWNERS MUTUAL INSURANCE COMPANY (OF IOWA), DES MOINES, *Est.* 1875;

MILLERS' MUTUAL INSURANCE ASSOCIATION OF ILLINOIS, ALTON, *Est.* 1877;

MILLERS MUTUAL FIRE INSURANCE COMPANY (OF PENNSYLVANIA), HARRISBURG, *Est.* 1890;

MILLERS NATIONAL INSURANCE COMPANY, CHICAGO, *Est.* 1865;

THE MILLERS MUTUAL FIRE INSURANCE COMPANY OF TEXAS, FORT WORTH, *Est.* 1898;

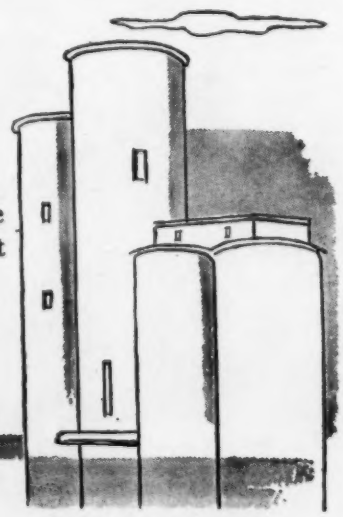
PENNSYLVANIA MILLERS MUTUAL FIRE INSURANCE COMPANY, WILKES BARRE, *Est.* 1877.

Collectively these companies are known as the "Mill Mutuals" and compose the Association of Mill and Elevator Mutual Insurance Companies, which operates the Mill Mutual Fire Prevention Bureau, and Departmental Offices of the Mills Mutuals as follows:

SOUTHWESTERN DEPARTMENT, KANSAS CITY;
NORTHWESTERN DEPARTMENT, MINNEAPOLIS;
SOUTHEASTERN DEPARTMENT, NASHVILLE;
OHIO DEPARTMENT, COLUMBUS;
PACIFIC DEPARTMENT, SEATTLE.

In addition to their fieldmen, to serve you in the laboratory and in the field are the engineers of Mill Mutual Fire Prevention Bureau, 400 West Madison Street, Chicago.

This service is available to you through any of these offices.



No. 9149—Insecticide Bulletin

A technical bulletin describing Fairfield Residual Concentrate No. 1, a combination of pyrenone and malathion, has been prepared by Fairfield Chemicals, Food Machinery & Chemical Corp. The bulletin describes the concentrate and its properties, as well as offering a sample label. The concentrate, company literature says, is effective in controlling roaches and other crawling insects. For copies of the bulletin, check No. 9149 on the coupon and mail.

No. 7730—Bulletin on Switches

Stephens-Adamson Manufacturing Co. announces the availability of Bulletin 159 on "Tellevel" bin control switches. The literature contains technical and engineering data, specifications, diagrams and illustrations on the normal duty explosion proof and heavy duty Tellevels. Copies of the bulletin can be obtained by checking No. 7730 on the coupon and mailing to this publication.

No. 7733—Hopper Brochure

A four page, two color brochure (Bulletin No. 265) describing advantages of self-dumping steel hoppers for bulk material handling is available from Roura Iron Works, Inc. Fourteen photographs illustrate how hoppers will handle soybean meal, foods, aggregates and other bulk materials. Illustrations show how hoppers are mounted on casters or skids for handling by fork truck, and full specifications of nine sizes available are listed. For copies, check No. 7733 on the coupon and mail.

Also Available

No. 2143—Experimental mill, MIAG of Brunswick, Germany.

No. 2145—Baler, Tol-O-Matic, Inc.

No. 2149—Capsule, Richardson Scale Co.

No. 2150—Switch, General Equipment & Manufacturing Co.

No. 2151—Brochure, General American Transportation Corp.

No. 2152—Bulletin, Allis-Chalmers Manufacturing Co.

No. 2153—Shovel, J. B. Ehrsam & Sons Manufacturing Co.

Windblown Soil Can Reduce Wheat Output, Scientist Says

MANHATTAN, KANSAS — Windblown soil can pose a serious threat to crops during windy seasons or in locations where the soil is loose and will blow easily, reports Leon Lyles of the wind erosion laboratory at Kansas State University here.

Mr. Lyles notes that in a research project at K-State winter wheat plants were subjected to windblown soil particles in the fall and spring and then were measured for reduced grain and plant material production. The plants were placed in a wind tunnel where wind velocities varied from 18 to 28 miles an hour.

Plants exposed in the fall suffered average yield losses of 18% for grain and 35% for plant material. Spring wind exposures effected even larger losses. Average grain yields in these cases dropped 57% and plant material decreased 52%.

Heading and ripening of grain exposed to the windblown soil in the spring were delayed a week to 10 days.

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An ingredient in the finest products of the milling field for more than 60 years, Olin Mathieson bicarbonate of soda can always be relied on to maintain the highest standards of purity and consistent quality. Check your requirements against the following grades: U.S.P. Powdered and Granular; Miller's Special Regular and Miller's Special No. 2; and Fine. Available from Saltville, Va., and strategically-placed distributor stocks. For additional information and samples just write:

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Recovers Valuable Washer Solids

An IPI Recovery System provides a practical—and profitable—method of recovering wheat-wash water solids. These solids are a marketable feed supplement, with a protein and fat content comparable to mill-run or mill-feed. Operational tests prove that in eight days—or less—mills recover the equivalent weight of one hour's grind (a minimum of ½%).

Eliminates Sewage Problems

Removing solids from the washer water drastically reduces the cost of sewage disposal. When an optional second stage (water recovery) is added, *total sewage volume* is generally reduced by as much as 90% or more.

Eliminates Water Problems

The use of the optional second stage of an IPI Recovery System enables mills to recover wheat wash water for re-use —and results in saving up to 90% of city water volume.

Your mill can recover *extra* profits—and solve sewage and water problems — too. You may have any additional information you wish, without obligation.

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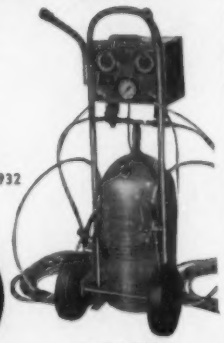

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O. C. Spohn Points to Better Attendances At Meetings When Addressing District 2

KANSAS CITY—O. C. Spohn, president of the Association of Operative Millers, speaking to members of the association's District 2 here in December, took the opportunity to point out the gradually increasing attendances and the growing enthusiasm shown by members at district meetings of the organization throughout the U.S. and Canada. The meeting here was an excellent example, he declared.

Those members of the allied trades whose job it is to attend meetings all over the country concurred with Mr. Spohn's observation in after-session discussions and one equipment man remarked that the renascence in attendance was indicative of the excellent programs now being presented by many district officers. Don S. Eber, AOM executive vice president, reported progress of the 1960 technical conference to be held in St. Louis next May.

District chairman Clyde Carver, who is associated with Commander Larabee Milling Co., opened the meeting and presided over the election of new officers.

The popular Dick Danbury, also of Commander Larabee, moved to the top spot from the vice chairmanship he has held for the past year with Steve Mooney, International Milling, as his No. 2 man. George Smutny, Entoleter, was reelected secretary-treasurer, drawing compliments from Mr. Eber for the excellent job he has done. Mr. Eber installed the new officers along with three new district committeemen—Jack Miller, Ismert-Hincke Milling Co.; Rolph Frye, Safeway, Inc., and Donald Smith, Quaker Oats Co.

George Swarbreck, editor of The Northwestern Miller-Milling Production, advised the millers and allied tradesmen to be ever on the alert for opportunities to publicize their industry and their product among ordinary people. As an example of what could be done, he showed a movie of a TV show which was produced over a local Minnesota station telling the story of wheat and flour in the Upper Midwest. Besides Mr. Swarbreck, the film showed Dr. Betty Sullivan, Russell-Miller Milling Co.; R. R. Brotherton, Bay State Milling Co., and Dudley Russell, Atkinson Milling Co.

J. O. Hibbard, Research Products Co., taking as his title "Where Do They Come From?" had some trenchant comments to make on sanitation problems, and the paper held the interest of the millers.

A panel discussion, with a variety of prepared questions previously distributed to the audience, was presided over expertly by Ernest Schroeder, Great Western Manufacturing Co. Questions were thrown at Harry Taylor, Rodney Milling Co.; George Tesarek, Quaker Oats Co.; William Blanchard, Bay State Milling Co.; Mr. Danbury and Mr. Mooney. This team of veterans and near-veterans fielded the questions expertly but with sufficient verve to encourage members of the audience to join in the arguments.

The evening event started with a cocktail party organized by the allied tradesmen under the direction of John Holden, H. R. Williams Mill Supply Co. The banquet attendance totaled 95 and Mrs. George Smutny—Marge to her many friends—made Christmas decorations for the tables. One was given to each lady present at the end of the affair. Thane Olsby, Sterwin Chemicals, Inc., "rhythmed" it up to such good effect that many people surrounded his piano to sing. Thereafter, there was dancing with another enterprising "do-it-yourself" entertainer, Don L. Eber, Tec-Con, Inc., Wichita, providing his Hi-Fi set for dance music.

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You can save time when planning and save money when buying if you'll send for these DAY dust control bulletins. Each contains valuable information about dust control equipment and systems. Here's general information plus useful technical data and specifications. Ask for any bulletin which interests you or write for them all—they're free. Use this magazine's reader service card or write direct toDAY.

BULLETIN G-579 — Describes the DAY Type "RJ" filter. An all purpose, versatile unit. Bulletin gives operating features, dimensions and specifications.

BULLETIN 573 — Dual-Clone dust separators — noted for their low resistance and high cleaning efficiency. Easy to install, no maintenance, no moving parts.

BULLETIN 576 — "HV" heavy duty dust separator. Rugged construction and lower initial cost than many light gauge galvanized type cyclones.

BULLETIN F-75 — Reverse Jet Dust Filter Facts. Complete with specifications, typical equipment layouts, capacity and performance tables for DAY type "AC" filter.

BULLETIN H-578 — Gives complete information about Style "A" rotary valves. Construction features, specifications, dimensions and applications.

"SCHLITZ DEFEATS DUST" — FOOD ENGINEERING magazine reprint describes all out dust control for 3½ million bushel Schlitz grain elevator. Request Bulletin "Schlitz Defeats Dust."

"EFFICIENT DUST SNATCHERS" — Bulletin describes DAY's part in providing maximum safety and good housekeeping for starch packing building of large food processor.

BULLETIN 510 — DAY Unit Dust Collectors. Complete, low cost unit designed for plants or applications where central dust control systems are not practical.

BULLETIN I-585 — Industrial Fans. Complete with helpful selection charts, capacity tables, dimensions and specifications. Information on special types and arrangements included.

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Dust Explosion Blamed

BUFFALO, N.Y.—Explosion of dust was blamed for fire in a large bin in the four-story brick plant of Verity Mills, Inc., here.

Robert E. McCulle, battalion chief, expressed belief the blast was set off by foreign matter—probably a stone—fed into the grinding machinery, with the resultant heat igniting dust.

Mr. McCulle estimated $5,200 damage. He reported $200 damage to the building and the balance to the bin and stored grain.

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MILLERS who employ the products and processes of STERWIN CHEMICALS INC. are assured of two big extras . . . at no extra cost!

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SECOND, a field force of technically trained specialists stands constantly ready to render on-the-spot, at-the-mill service. These specialists, calling on years of broad experience in every phase of flour treatment, answer questions, solve problems, help effect valuable savings in time, money and labor.

Yet these twin benefits carry no price tag. They are contributions which STERWIN makes with pride as part of its continuing effort to provide the very finest flour treatment to the millers of the U. S. and Canada.

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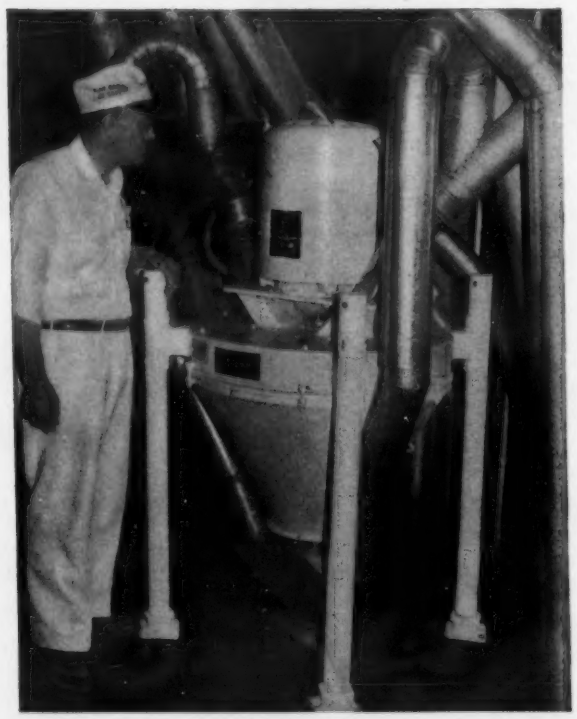

A 27" Entoleter Centrifugal Impact Mill (pictured above with Fred Stivers) was installed at Southeastern Mills. Its 15 horsepower motor has a put-through capacity of 3500 lbs. per hour. This compact machine requires only 14.8 sq. ft. of floor space.

The bottle-neck to increasing mill capacity is usually roller mill surface... but it's a fact that the replacement of roller mills with Entoleter® Impact Mills at certain positions will free roller mill surface and increase capacity as much as 20%.

This radically new concept in grain milling utilizes a relatively low cost machine, which takes up a minimum of floor space and requires surprisingly low horsepower.

SOUTHEASTERN MILLS AT ROME, GEORGIA PROVES IT

Fred Stivers, Superintendent of Southeastern Mills reports, "Our primary goal was to increase capacity at a minimum investment with no increase in production cost and practically no floor space to spare." By replacing our second mid roller mill with an Entoleter mill, we increased our capacity from 120 to 140 bushels per hour, running hard wheat with no loss of quality nor change in yield per bushels.

Write Now! We will be glad to send literature or arrange a visit to discuss this important new concept in grain milling.

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